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Technical analysis of the third biennial update report of Brazil submitted on 2 March 2019

Summary report by the team of technical experts

Summary

According to decision 2/CP.17, paragraph 41(a), Parties not included in Annex I to the Convention, consistently with their capabilities and the level of support provided for reporting, were to submit their first biennial update report by December 2014. Further, paragraph 41(f) of that decision states that Parties not included in Annex I to the Convention shall submit a biennial update report every two years, either as a summary of parts of their national communication in the year in which the national communication is submitted or as a stand-alone update report. As mandated, the least developed country Parties and small island developing States may submit biennial update reports at their discretion. This summary report presents the results of the technical analysis of the third biennial update report of Brazil, conducted by a team of technical experts in accordance with the modalities and procedures contained in the annex to decision 20/CP.19.

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Abbreviations and acronyms

ABC Plan	National Plan for Low Carbon Emissions in Agriculture
AD	activity data
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BUR	biennial update report
CDM	clean development mechanism
CGE	Consultative Group of Experts
CH_4	methane
CORINAIR	Core Inventory of Air emissions
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
EF	emission factor
GHG	greenhouse gas
GTP	global temperature change potential
GWP	global warming potential
HFC	hydrofluorocarbon
ICA	international consultation and analysis
IPCC	Intergovernmental Panel on Climate Change
IPCC good practice guidance	*Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*
IPCC good practice guidance for LULUCF	*Good Practice Guidance for Land Use, Land-Use Change and Forestry*
LULUCF	land use, land-use change and forestry
MRV	measurement, reporting and verification
NA	not applicable
NAMA	nationally appropriate mitigation action
NC	national communication
non-Annex I Party	Party not included in Annex I to the Convention
N_2O	nitrous oxide
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
REDD+	reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks (decision 1/CP.16, para. 70)
Revised 1996 IPCC Guidelines	*Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*
SF_6	sulfur hexafluoride
TTE	team of technical experts
UNFCCC guidelines for the preparation of NCs from non-Annex I Parties	"Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention"
UNFCCC reporting guidelines on BURs	"UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention"
2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*

I. Introduction and process overview

A. Introduction

1. The process of ICA consists of two steps: a technical analysis of the submitted BUR and a facilitative sharing of views under the Subsidiary Body for Implementation, resulting in a summary report and record, respectively.

2. According to decision 2/CP.17, paragraph 41(a), non-Annex I Parties, consistently with their capabilities and the level of support provided for reporting, were to submit their first BUR by December 2014. In addition, paragraph 41(f) of that decision states that non-Annex I Parties shall submit a BUR every two years, either as a summary of parts of their NC in the year in which the NC is submitted or as a stand-alone update report.

3. Further, according to paragraph 58(a) of the same decision, the first round of ICA is to commence for non-Annex I Parties within six months of the submission of the Parties' first BUR. The frequency of developing country Parties' participation in subsequent rounds of ICA, depending on their respective capabilities and national circumstances, and the special flexibility for small island developing States and the least developed country Parties, will be determined by the frequency of the submission of BURs.

4. Decision 14/CP.19, paragraph 7, outlines that developing country Parties seeking to obtain and receive payments for results-based actions can submit relevant information and data through the BUR in the form of a technical annex as per decision 2/CP.17, annex III, paragraph 19. Decision 14/CP.19, paragraph 8, outlines that the submission of the technical annex is voluntary and in the context of results-based payments. As mandated by decision 14/CP.19, paragraphs 10–14, the technical annex submitted by Brazil has been subject to technical analysis by two LULUCF experts as part of the technical analysis of the Party's BUR.

5. Brazil submitted its second BUR on 3 March 2017, which was analysed by a TTE in the eighth round of technical analysis of BURs from non-Annex I Parties, conducted from 22 to 26 May 2017. After the publication of its summary report, Brazil participated in the seventh workshop for the facilitative sharing of views, convened in Bonn on 19 June 2019.

6. This summary report presents the results of the technical analysis of the third BUR of Brazil, undertaken by a TTE in accordance with the provisions on the composition, modalities and procedures of the TTE under ICA contained in the annex to decision 20/CP.19. The technical report capturing the results of the technical analysis of the technical annex voluntarily submitted by Brazil in the context of results-based payments in accordance with paragraphs 7 and 8 of decision 14/CP.19, referred to in paragraph 4 above, is contained in document FCCC/SBI/ICA/2019/TATR.4/BRA.

B. Process overview

7. In accordance with the mandate referred to in paragraph 2 above, Brazil submitted its third BUR on 2 March 2019 as a stand-alone update report. The submission was made within two years after the submission of the previous BUR.

8. The technical analysis of the BUR took place from 2 to 6 September 2019 in Bonn and was undertaken by the following TTE, drawn from the UNFCCC roster of experts on the basis of the criteria defined in decision 20/CP.19, annex, paragraphs 2–6: Ruleta Camacho Thomas (former member of the CGE from Antigua and Barbuda), Ana-Maria Danila (former member of the CGE from the European Union), Andres B Espejo (Spain), Mahendra Kumar (former member of the CGE from Marshall Islands), Julius Madzore (Zimbabwe), Neranda Maurice-George (Saint Lucia), Engin Mert (Turkey), José María Michel Fuentes (Mexico), Elizabeth Philip (Malaysia), Verica Taseska Gjorgievska (North Macedonia) and Harry Vreuls (Netherlands). Ms. Camacho Thomas and Ms. Danila were the co-leads. The technical analysis was coordinated by Jamie Howland and Karen Ortega (secretariat).

9. During the technical analysis, in addition to the written exchange, through the secretariat, to provide technical clarifications on the information reported in the BUR, the TTE and Brazil engaged in consultation[1] on the identification of capacity-building needs for the preparation of BURs and participation in the ICA process. Following the technical analysis of Brazil's third BUR, the TTE prepared and shared a draft summary report with Brazil on 31 October 2019 for its review and comment. Brazil, in turn, provided its feedback on the draft summary report on 31 January 2020.

10. The TTE responded to and incorporated Brazil's comments referred to in paragraph 9 above and finalized the summary report in consultation with the Party on 4 June 2020.

II. Technical analysis of the biennial update report

A. Scope of the technical analysis

11. The scope of the technical analysis is outlined in decision 20/CP.19, annex, paragraph 15, according to which the technical analysis aims to, without engaging in a discussion on the appropriateness of the actions, increase the transparency of mitigation actions and their effects and shall entail the following:

(a) The identification of the extent to which the elements of information listed in paragraph 3(a) of the ICA modalities and guidelines (decision 2/CP.17, annex IV) have been included in the BUR of the Party concerned (see chap. II.B below);

(b) A technical analysis of the information reported in the BUR, specified in the UNFCCC reporting guidelines on BURs (decision 2/CP.17, annex III), and any additional technical information provided by the Party concerned (see chap. II.C below);

(c) The identification, in consultation with the Party concerned, of capacity-building needs related to the facilitation of reporting in accordance with the UNFCCC reporting guidelines on BURs and to participation in ICA in accordance with the ICA modalities and guidelines, taking into account Article 4, paragraph 3, of the Convention (see chap. II.D below).

12. The remainder of this chapter presents the results of each of the three parts of the technical analysis of Brazil's BUR outlined in paragraph 11 above.

B. Extent of the information reported

13. The elements of information referred to in paragraph 11(a) above include the national GHG inventory report; information on mitigation actions, including a description of such actions, an analysis of their impacts and the associated methodologies and assumptions, and the progress made in their implementation; information on domestic MRV; and information on support needed and received.

14. According to decision 20/CP.19, annex, paragraph 15(a), in undertaking the technical analysis of the submitted BUR, the TTE is to identify the extent to which the elements of information listed in paragraph 13 above have been included in the BUR of the Party concerned. The TTE considers that the reported information is mostly consistent with the UNFCCC reporting guidelines on BURs. Specific details on the extent of the information reported for each of the required elements are provided in annex I.

15. The current TTE noted improvements in reporting in the Party's third BUR compared with that in the second BUR. Information on GHG inventories, mitigation actions and their effects, and needs and support reported in the third BUR demonstrates that the Party has taken into consideration the areas for enhancing transparency noted by the previous TTE in the summary report on the technical analysis of the Party's second BUR.

[1] The consultation was conducted via videoconferencing.

C. Technical analysis of the information reported

16. The technical analysis referred to in paragraph 11(b) above aims to increase the transparency of mitigation actions and their effects, without engaging in a discussion on the appropriateness of those actions. Accordingly, the focus of the technical analysis was on the transparency of the information reported in the BUR.

17. For information reported on national GHG inventories, the technical analysis also focused on the consistency of the methods used for preparing those inventories with the appropriate methods developed by the IPCC and referred to in the UNFCCC reporting guidelines on BURs.

18. The results of the technical analysis are presented in the remainder of this chapter.

1. Information on national circumstances and institutional arrangements relevant to the preparation of national communications on a continuous basis

19. As per the scope defined in paragraph 2 of the UNFCCC reporting guidelines on BURs, the BUR should provide an update to the information contained in the most recently submitted NC, including information on national circumstances and institutional arrangements relevant to the preparation of NCs on a continuous basis. In their NCs, non-Annex I Parties report on their national circumstances following the reporting guidance contained in decision 17/CP.8, annex, paragraphs 3–5, and they could report similar information in their BUR, which is an update of their most recently submitted NC.

20. In its third BUR, Brazil provided an update on its national circumstances, including information on physical, ecological and socioeconomic factors and policy aspects, which include institutional arrangements. The Party provided information on its National Policy on Climate Change, which provides the legal basis for climate change action in Brazil. Brazil is an urban-industrial country with a significant agricultural base. Its vast territory encompasses a mosaic of ecosystems with five climatic regions: equatorial, tropical, semi-arid, tropical high altitude and subtropical. Brazil's six terrestrial biomes – Amazon, Atlantic Forest, Caatinga, Cerrado, Pampa and Pantanal – are home to 20 per cent of the total number of species, on the planet. Renewables comprised 43.2 per cent of the country's energy mix in 2017, with biofuels and sugar cane biomass accounting for 40.3 per cent of total energy. Renewables supplied 80.4 per cent of electricity. Hydropower sources accounted for 59.4 per cent of total electricity, followed by natural gas, 10.5 per cent, and wind, 6.8 per cent. While the socioeconomic indicators show great improvements in the country over the past 30 years, Brazil has a growing population and still faces development challenges in areas such as poverty eradication, education, public health, employment, housing, infrastructure, energy access and sanitation.

21. In addition, Brazil provided a summary of relevant information regarding its national circumstances, such as socioeconomic indicators and the legal framework for the National Policy on Climate Change, in tabular format.

22. Brazil transparently described in its BUR the existing institutional arrangements relevant to the preparation of its NCs and BURs on a continuous basis. The description covers key aspects of the institutional arrangements, including the involved institutions and a description of programmes and projects under the National Policy on Climate Change, instituted by Law No. 12187/2009. The General Coordination on Global Climate Change of the Ministry of Science, Technology, Innovation and Communications is responsible for coordinating the project, which assists in the preparation of Brazil's NCs and BURs, while the Ministry of Foreign Affairs is responsible for coordinating its BURs with the support of a task force comprising relevant ministries (Science, Technology, Innovation and Communications; Environment; Agriculture; Mines and Energy; and Economy), the Brazilian Agricultural Research Corporation and the Brazilian Cooperation Agency. Brazil established a governance structure, with specific mandates and assignments, for the implementation of the National Policy on Climate Change. The Inter-ministerial Committee on Climate Change and its Executive Board and the Inter-ministerial Commission on Global Climate Change are the main institutional instruments for implementing the Policy, while at the civil society level, the Brazilian Forum for Climate Change and the Brazilian Research

Network on Global Climate Change assist in implementation. Brazil reported clearly its governance arrangements; however, the roles and responsibilities of the agencies involved, in particular in relation to QA/QC procedures and coordination arrangements, are not clearly defined. The TTE noted that transparency could be further enhanced by including such information in the next BUR.

23. Brazil reported on its domestic MRV system, including arrangements and databases relating to its GHG emissions and its mitigation actions defined as NAMAs. An MRV system for the ABC Plan is also being implemented, incorporating the ABC Plan governance system and the Multi-Institutional Platform to Monitor the Reduction of Greenhouse Gas Emissions. Brazil described SIRENE, the national emissions registry system and official tool for releasing national GHG estimates, in the second BUR, and in the third BUR, the Party mentioned that SIRENE has been accessed by diverse users for monitoring Brazil's GHG emissions and developing mitigation strategies. Brazil is working on improving SIRENE in terms of data and guidelines relating to the inventory and is redesigning the portal to improve the user interface. The Party is also developing SMMARE, a modular system for monitoring actions and GHG emission reductions. Brazil is awaiting the finalization of the enhanced transparency framework under the Paris Agreement in order to resume the implementation of its transparency arrangements. During the technical analysis, Brazil clarified that domestic MRV arrangements – given their large scale and broad scope – are continuously being enhanced.

2. National greenhouse gas emissions by sources and removals by sinks

24. As indicated in table 1 in annex I, Brazil reported information on its GHG inventory in its BUR mostly in accordance with paragraphs 3–10 of the UNFCCC reporting guidelines on BURs and paragraphs 8–24 of the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties, contained in the annex to decision 17/CP.8.

25. Brazil submitted its third BUR in 2019, and the GHG inventory reported covers 1990–2015, which is consistent with the requirements for the reporting time frame. The GHG inventory presented updates of the Party's NC3, with inventory information for 2013–2015 and updated emissions for 2011 and 2012.

26. GHG emissions and removals for the BUR covering the 1990–2015 inventories were estimated using methodologies from the Revised 1996 IPCC Guidelines; in some cases, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF were applied, as appropriate. EF values from the 2006 IPCC Guidelines were used for CO_2 emissions under LULUCF, for the energy sector and for some categories of the industrial processes sector (i.e. cement, iron and steel, chemical production, HFC production and consumption, SF_6 consumption, and other uses of limestone and dolomite). A combination of methodologies from the Revised 1996 IPCC Guidelines and the 2006 IPCC Guidelines was used for estimating fugitive emissions and emissions from agricultural soils and waste. The TTE commends the Party for using the 2006 IPCC Guidelines in these cases.

27. Brazil indicated in its BUR that the methodologies and assumptions used for compiling the GHG inventory were same as those used for the NC3. During the technical analysis, the Party presented an updated overview of the methodologies used, including tiers applied for individual categories. The TTE notes that including the details provided during the technical analysis could facilitate a better understanding of the information reported in subsequent BURs.

28. Brazil used the values from the AR2 to report the change in total GHG emissions from 1,476,964 Gg CO_2 eq in 1994 to 1,368,152 Gg CO_2 eq in 2015.

29. Information on the Party's total GHG emissions by gas for 2015 is outlined in table 1 in Gg for CO_2, CH_4, N_2O, SF_6, six individual gas species of HFCs and two individual gas species of PFCs. The TTE commends the Party for reporting those individual gases in a disaggregated manner.

Table 1
Greenhouse gas emissions and removals by gas for Brazil for 2015

Gas	*GHG emissions (Gg) including LULUCF*
CO_2	797 840
CH_4	17 622
N_2O	614.7
HFCs	
HFC-23	0.0000
HFC-32_pot	0.1730
HFC-125_pot	0.6103
HFC-143a_pot	0.6075
HFC-152a_pot	0.0000
HFC-134a	3.9276
PFCs	
CF_4	0.0333
C_2F_6	0.0025
SF_6	0.0092

30. Other emissions reported for the year 2015 include 36,256.2 Gg carbon monoxide, 2,669.2 Gg nitrogen oxides and 99,995.4 Gg non-methane volatile organic compounds.

31. Brazil did not apply notation keys in tables where numerical data were not provided. During the technical analysis, the Party provided a revised set of tables containing notation keys, used consistently with the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties. The TTE noted that the Party including notation keys, where appropriate, together with information on their application, in the BUR could facilitate a better understanding of the information reported.

32. Brazil included sectoral reporting tables comparable with tables 1 and 2 in the annex to the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties. However, the Party did not report comparable information addressing the tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF as encouraged. During the technical analysis, Brazil explained that it opted not to do so owing to the large number of categories considered in the national inventory and the large quantity of tables that would be needed to comply with the format provided in the IPCC good practice guidance for LULUCF. The TTE noted that the Party including comparable information addressing tables included in annex 3.A.2 to the IPCC good practice guidance for LULUCF in the BUR, as appropriate and to the extent that capacities permit, could facilitate a better understanding of the information reported.

33. The shares of emissions that different sectors contributed to the total GHG emissions including LULUCF as reported by the Party in 2015 are reflected in table 2.

Table 2
Shares of greenhouse gas emissions by sector for Brazil for 2015

	GWP values from the AR2 for 100-year time-horizon		*GWP values from the AR5 for 100-year time-horizon*		*GTP values from the AR5 for 100-year time-horizon*	
Sector	*GHG emissions (Gg CO_2 eq)*	*Share[a] (%)*	*GHG emissions (Gg CO_2 eq)*	*Share[a] (%)*	*GHG emissions (Gg CO_2 eq)*	*Share[a] (%)*
Energy	449 408	33	452 675	31	434 696	43
Agriculture	428 905	31	496 142	34	171 016	17
LULUCF	331 806	24	337 690	23	308 747	30
Industrial processes	95 338	7	96 407	6	88 310	9

	GWP values from the AR2 for 100-year time-horizon		*GWP values from the AR5 for 100-year time-horizon*		*GTP values from the AR5 for 100-year time-horizon*	
Sector	*GHG emissions (Gg CO_2 eq)*	*Share[a] (%)*	*GHG emissions (Gg CO_2 eq)*	*Share[a] (%)*	*GHG emissions (Gg CO_2 eq)*	*Share[a] (%)*
Waste	62 695	5	82 373	6	13 474	1
Total	**1 368 152**	**–**	**1 465 287**	**–**	**1 016 243**	**–**

[a] Share of total emissions including LULUCF.

34. Brazil reported information on its use of GWP values consistent with those provided in the AR2 based on the effects over a 100-year time-horizon of GHGs. In addition, Brazil presented inventory data using GWP values and GTP values based on the effects over a 100-year time-horizon of GHGs and consistent with those provided in the AR5.

35. The energy sector emissions totalled 449,408 Gg CO_2 eq (using GWP values from the AR2) and accounted for 33 per cent of total emissions in 2015, compared to emissions from the sector totalling 209,959 Gg CO_2 eq in 1994. The sector emitted 420,313 Gg CO_2, 688.1 Gg CH_4 and 47.2 Gg N_2O. Road transport and electricity production were the two largest contributors to the CO_2 emissions in this sector, with shares of 43 and 23 per cent, respectively, in 2015. During the technical analysis, Brazil clarified that default CO_2 EFs from the 2006 IPCC Guidelines were used for the energy sector, except in some cases where country-specific EFs were applied (e.g. firewood, charcoal and piped gas). For non-CO_2 gases, default EFs were used (tier 1 and 2); they were applied to each fuel consumed per end use. Country-specific EFs were used for fuels consumed in road transport. The tier 1 methodology and default EFs from the Revised 1996 IPCC Guidelines were applied for coal mining.

36. Industrial process emissions amounted to 95,338 Gg CO_2 eq (using GWP values from the AR2) in 2015 (7 per cent of the national total GHG emissions), compared to emissions from the sector totalling 62,234 Gg CO_2 eq in 1994. The sector emitted 84,212 Gg CO_2, 40.7 Gg CH_4 and 1.86 Gg N_2O. Iron and steel and cement production were the two largest emitting subsectors, with 50 and 28 per cent shares of CO_2 emissions, respectively, in 2015. During the technical analysis, Brazil clarified the methodologies applied for individual subsectors. Tier 2 or 3 methodologies were applied for cement, lime, aluminium and some chemical industries (ethylene oxide, acrylonitrile and carbon black, ammonia, nitric acid, adipic acid and caprolactam). Higher-tier methods were also applied for HFC-134 production and consumption and SF_6 consumption. For the other industrial subsectors, estimates were calculated on the basis of the tier 1 methodology.

37. For the agriculture sector, emissions in 2015 totalled 428,905 Gg CO_2 eq (using GWP values from the AR2), or 31 per cent of total GHG emissions, compared to emissions from the sector totalling 310,915 Gg CO_2 eq in 1994. The sector emitted 12,887.5 Gg CH_4 and 510.54 Gg N_2O in 2015. Direct N_2O emissions from agricultural soils (60 per cent of the sector's N_2O emissions) and CH_4 emissions from enteric fermentation in beef cattle (76 per cent of the sector's CH_4 emissions) are the principal emissions sources in the sector. The tier 1 methodology was applied for agricultural soils, while for the other subsectors, a combination of tier 1 and 2 methodologies was applied.

38. For the LULUCF sector, Brazil reported GHG emissions and removals for 1990–2015. Net emissions in the sector totalled 331,806 Gg CO_2 eq (using GWP values from the AR2) in 2015, compared to net emissions from the sector totalling 861,964 Gg CO_2 eq in 1994. During the technical analysis, the Party explained that all the parameters and emission/removal factors for each carbon pool of the different land uses were estimated from studies carried out within the country (i.e. a tier 2 or 3 approach), and in the absence of country-specific data, IPCC default ratios were used (i.e. a tier 1 approach). Emissions due to biomass burning associated with deforestation were calculated using tier 1 and 2 methodologies from the IPCC good practice guidance for LULUCF. Biomass burning emissions not associated with deforestation have not yet been included in the inventory, as the methodology for these estimates is still under development.

39. In the waste sector, emissions amounted to 62,695 Gg CO_2 eq (using GWP values from the AR2) in 2015, compared to emissions from the sector totalling 31,900 Gg CO_2 eq in 1994, and they were mainly attributable to CH_4 emissions from solid waste disposal sites and effluents. During the technical analysis, Brazil clarified that tier 1 and 2 methodologies from the Revised 1996 IPCC Guidelines and some parameters from the 2006 IPCC Guidelines were used for estimating emissions from this sector.

40. The GHG inventory reported in the BUR provides an update to the GHG inventory reported in the NC3, which addressed anthropogenic emissions and removals up to 2010. The update was carried out and the inventory includes years 2011, 2012, 2013, 2014 and 2015 using the same methodologies applied in the NC3.

41. Brazil described in its BUR the institutional framework for the preparation of its GHG inventory. The Ministry of Science, Technology, Innovation and Communications is the governmental body responsible for the Party's GHG inventory and coordinates all activities necessary for its preparation. A diagram showing the institutional arrangements, including a list of institutions involved in the preparation of the inventory, was included in Brazil's third BUR. The TTE commends Brazil for the transparent reporting of information on its institutional arrangements. During the technical analysis, the Party expressed the need to strengthen institutional capacities for collecting data and preparing national GHG inventories on a biennial basis.

42. Brazil did not report a key category analysis in its third BUR but referred to the key category analysis performed for the NC3. During the technical analysis, the Party clarified that the key category analysis was conducted in accordance with IPCC guidelines and considering GWP values from the AR2. Brazil is investing in the development of country-specific parameters that will improve the accuracy of the analysis of the main subsectors. The biggest challenge in implementing higher tiers in the inventory is related to the need to identify, preferably, region-specific EFs and other parameters, which are necessary owing to the wide diversity in characteristics of Brazil's extensive national territory.

43. The BUR provides information on QA/QC measures for all sectors. A team of experts undertakes a detailed methodological verification to comply with good practices for QC recommended by the IPCC. The TTE commends Brazil for providing information in accordance with the IPCC good practice guidance.

44. Brazil reported information on CO_2 fuel combustion using only the sectoral approach. During the technical analysis, the Party clarified that reference approach emissions were calculated for the NC3, so it did not consider that reporting this information in the BUR as necessary. The TTE noted that the Party providing updated information on both the reference and the sectoral approach in the BUR could facilitate a better understanding of the information reported.

45. Information was reported on international aviation and marine bunker fuels, in accordance with IPCC guidelines.

46. Brazil reported information on the uncertainty assessment (level) of its national GHG inventory. The uncertainty analysis was based on an approach similar to that used for the NC3 and covers CO_2, CH_4 and N_2O. The results obtained, as reported in the BUR, reveal that the level uncertainty for emissions of these three gases (which cover 99.3 per cent of national total GHG emissions) is 11 per cent (including LULUCF).

47. The TTE noted that the transparency of the information reported on GHG inventories could be further enhanced by addressing the areas noted in paragraphs 27, 31, 32 and 44 above.

48. In paragraphs 37, 38 and 42 of the summary report on the technical analysis of Brazil's second BUR, the previous TTE noted the transparency of reporting on inventory arrangements, QC procedures and the uncertainty analysis could be further enhanced. The TTE noted that Brazil took into consideration these areas for improvement outlined in the inventory section of the BUR and commends the Party for enhancing the transparency of the information reported.

3. Mitigation actions and their effects, including associated methodologies and assumptions

49. As indicated in table 2 in annex I, Brazil reported in its BUR, mostly in accordance with paragraphs 11–13 of the UNFCCC reporting guidelines on BURs, information on mitigation actions and their effects, to the extent possible.

50. The information reported provides a mostly clear and comprehensive overview of the Party's mitigation actions and their effects. In its BUR, which includes information on national context, Brazil frames its national mitigation planning and actions in the context of the National Policy on Climate Change, as well as sectoral plans, namely the ABC Plan, which focuses on increasing the area under sustainable production systems, thus ensuring the reduction of GHG emissions; the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon, which aims to reduce deforestation and the degradation of native vegetation; the Action Plan for the Prevention and Control of Deforestation and Forest Fires in the Cerrado Biome; and the Sustainable Steel Industry Plan, which promotes the sustainable production of charcoal used as an input to the production of pig iron, steel and ferroalloys. Brazil also reported that its mitigation actions are part of its nationally determined contribution targets, under which it aims to reduce GHG emissions by 37 per cent below the 2005 level by 2025 and 43 per cent below the 2005 level by 2030. Brazil reported five NAMAs that cover the energy sector (one of which also covers the industrial processes sector), four that cover the agriculture sector and two that cover the LULUCF sector. Brazil reported that climate change has been mainstreamed and integrated into its development plans, including mitigation.

51. The Party reported a summary of its mitigation actions in tabular format in accordance with decision 2/CP.17, annex III, paragraph 11. The sectors covered are agriculture, LULUCF, industrial processes and energy.

52. Consistently with decision 2/CP.17, annex III, paragraph 12(a), Brazil clearly reported the names of mitigation actions or groups of actions, coverage (sector and gases) and progress indicators in table XIV of the BUR. A description of mitigation actions was clearly reported in the BUR; however, information on quantitative goals was not identified. The TTE identified a number of non-quantitative goals for Brazil's NAMAs, such as to strengthen the agriculture sector's capacity to adapt to climate change, which were reported across the energy, industrial processes, agriculture and LULUCF sectors. During the technical analysis, Brazil clarified that it is still improving its reporting of goals and that the qualitative goal for each NAMA was recorded as an "estimated reduction related to the NAMA". The TTE acknowledged that the Party reported quantitative information on goals under "goals" and "estimated reduction related to the NAMAs", which left room for various interpretations on the goals associated with the mitigation actions in the BUR. The TTE therefore notes that improving the clarity of future reports by using one consistent term for goals associated with its reported NAMAs could facilitate a better understanding of the information reported.

53. Consistently with decision 2/CP.17, annex III, paragraph 12(b–d), Brazil reported information for the mitigation actions in the energy, industrial processes, agriculture and LULUCF sectors, including the methodologies used for estimating the results achieved for the mitigation actions. Details on the underlying assumptions were also clearly reported in the BUR for these sectors. The objectives of the mitigation actions were reported, and information on the steps taken to implement them was reported. The Party reported that its mitigation measures were derived from projects that are ongoing. Regarding information on the progress and the underlying steps taken or envisaged, Brazil reported on the underlying steps taken but not on the steps envisaged in order for its mitigation actions to continue – they are all earmarked for completion in 2020. Brazil indicated that its specific objectives refer to the steps envisaged for its mitigation actions. The TTE noted that the Party providing information on the steps envisaged to report its future plans towards attaining its specific objectives in the BUR could facilitate a better understanding of the information reported.

54. The mitigation actions in the energy sector are mainly focused on incorporating renewables into the energy mix and promoting energy efficiency. These NAMAs were successfully implemented from 2010 to 2017 and are ongoing. From 2016 to 2017, they enabled the addition of 8,296 MW of installed hydropower to the electricity system,

including 373 MW from small hydroelectric plants, and 4,660 MW of installed electrical generation capacity was added from wind power, 4,660 MW from biomass and 1,066 MW from solar photovoltaic technology. By 2020, the anticipated GHG emission reductions will amount to 79–99 Mt CO_2 eq for the hydroelectricity NAMA, 26–33 Mt CO_2 eq for the wind, biomass and solar photovoltaic NAMA, and 48–60 Mt CO_2 eq for the biofuel NAMA.

55. The mitigation action in the industrial processes sector is in the area of reducing emissions through the sustainable production of charcoal. Brazil reported information on the results achieved from the implementation of its Sustainable Steel Industry Plan, as outcomes and estimated emission reductions. This Plan was successfully implemented from 2010 to 2017. The BUR reported the Plan as ongoing and reported the progress for the biennium 2016–2017. During this period, the projects under the Plan enabled the Brazilian Government to sign six charcoal producer contracts following the adoption of the payment by results mechanism. Brazil also implemented five demonstration units and continued work on developing an MRV system to monitor emission reductions from the implemented projects. By 2020, the anticipated GHG emission reductions will amount to 8–10 Mt CO_2 eq.

56. The mitigation actions for the agriculture sector are mainly in the area of efficiency improvements in the control of GHG emissions related to agriculture activities. Brazil reported information on the results achieved from the implementation of its ABC Plan, as outcomes and estimated emission reductions. The ABC Plan was established in 2010 and is ongoing. By 2020, the anticipated GHG emission reductions are as follows: from the restoration of grazing land, 83–104 Mt CO_2 eq; from the integration of crop and livestock systems, 18–22 Mt CO_2 eq; and from no-till farming, 16–20 Mt CO_2 eq. Specific mitigation actions successfully implemented under the ABC Plan were reported: the restoration of grazing land project (implemented during 2010–2018), which recovered 4.46 million ha of degraded pastures; the integrated crop and livestock systems project (2010–2016), which expanded agriculture, livestock and forest integration by 5.83 million ha; and the no-till farming project (2010–2016), which increased no-till farming systems by 9.97 million ha, an area which overlapped with the biological nitrogen fixation project. Brazil also reported co-benefits of the ABC Plan, including increased food production, increased food safety and increased resilience of production systems to climate change.

57. The mitigation actions in the LULUCF sector are mainly in the area of addressing deforestation and degradation and promoting the sustainable use of forest resources. Brazil reported information on the results achieved from the implementation of its sectoral action plans, as emission reductions and other quantitative results. The Action Plan for the Prevention and Control of Deforestation in the Legal Amazon was successfully implemented from 2010 to 2017, is ongoing, and has enabled the Brazilian Government to, inter alia, allocate 47.8 million ha of previously unallocated land, protect 28.5 per cent of the Amazon biome, decrease deforested areas within conservation units by 84 per cent, register 5.5 million rural properties, and decrease conservation areas affected by fires from 271,679.41 ha in 2016 to 136,112.52 ha in 2017. By 2020, the anticipated GHG emission reductions from the restoration of grazing lands will amount to 564 Mt CO_2 eq. The Action Plan for the Prevention and Control of Deforestation and Forest Fires in the Cerrado Biome was successfully implemented from 2010 to 2017, is ongoing, and has enabled the Brazilian Government to, inter alia, decrease deforested areas within conservation units by 48 per cent, expand the biome within protected areas by 5 per cent, register 5.5 million rural properties, and decrease conservation areas affected by fires from 271,679.41 ha in 2016 to 136,112.52 ha in 2017. By 2020, the anticipated GHG emission reductions from the restoration of grazing lands will amount to 104 Mt CO_2 eq.

58. Brazil provided information on its involvement in international market mechanisms as a Party to the Kyoto Protocol. Brazil documented 424 CDM projects approved by its designated national authority and 342 verified CDM projects under the UNFCCC CDM process. The statistics include information on the total number of projects for the period 2004–2017. Of the projects in that period, 94 (27.7 per cent of the total) related to hydropower (the type of project with the greatest mitigation impact), with estimated total emission reductions of 138,473,415 t CO_2 eq; 63 (18.4 per cent) related to biogas; 57 (16.7 per cent) related to wind; 52 (15.2 per cent) related to landfill gas; 41 (12 per cent) related to biomass; 9 (2.6 per cent) related to the substitution of fossil fuels; 9 (2 per cent) related to methane

avoidance; 5 (1.5 per cent) related to decomposition of N_2O; 4 (1.2 per cent) related to heat recovery; and 3 (1.2 per cent) related to reforestation and afforestation. Other projects included, solar photovoltaic energy, energy efficiency, replacement of SF_6, and PFC reduction and replacement. As reported by Brazil, the estimated annual GHG reduction associated with CDM projects registered up to December 2017 was 49,192,159 t CO_2 eq. The TTE commends Brazil for providing this detailed information.

59. Brazil reported information on its domestic MRV arrangements in accordance with decision 2/CP.17, annex III, paragraph 13. The information reported indicates that Brazil has in place a domestic MRV system for mitigation actions (SMMARE (see para. 24 above)). In addition, the Party has several databases in place covering the LULUCF and agriculture sectors and the steel industry (charcoal). Brazil indicated that further improvements to SMMARE will commence pending the finalization of the enhanced transparency framework under the Paris Agreement.

60. The TTE noted that the transparency of the information reported on mitigation actions and their effects could be enhanced by addressing the areas noted in paragraphs 52 and 53 above.

61. In paragraphs 47 and 49 of the summary report on the technical analysis of Brazil's second BUR, the previous TTE noted where the transparency of reporting on methodologies and assumptions and estimated GHG emission reductions could be enhanced. The current TTE noted that Brazil took into consideration these areas for improvement outlined in the mitigation section of the BUR and commends the Party for enhancing the transparency of the information reported.

4. Constraints and gaps, and related technology, financial, technical and capacity-building needs, including a description of support needed and received

62. As indicated in table 3 in annex I, Brazil reported in its BUR, fully in accordance with paragraphs 14–16 of the UNFCCC reporting guidelines on BURs, information on finance, technology and capacity-building needs and support received. Brazil reported information on constraints and capacity-building, finance and technology needs.

63. Brazil reported information on constraints and gaps, and related financial, technical and capacity-building needs, in accordance with decision 2/CP.17, annex III, paragraph 14. In its BUR, Brazil highlighted that its dimensions and its social, economic and environmental diversity renders the information provided "provisional, partial and non-exhaustive". The Party faced considerable challenges in providing in-depth information on constraints and gaps, and related financial, technical and capacity-building needs. Brazil provided in tabular format a list of the needs in the energy, industrial processes, agriculture and LULUCF sectors. Many of Brazil's constraints and needs are related to financial support; the Party reported that its technical and capacity-building needs are mainly tied to the need for more financial resources. During the technical analysis, Brazil explained that although specific needs exist for capacity-building in some areas, its major focus is on support for greater coverage of the country.

64. Brazil reported information on financial resources, technology transfer, capacity-building and technical support received in accordance with decision 2/CP.17, annex III, paragraph 15. In its BUR, the Party reported that it received from multilateral and bilateral channels USD 150,328,879.00 and USD 127,267,510, respectively, in 2016, and USD 2,117,314,232.74 and USD 309,864,549.11, respectively, in 2017. The total allocation for 2016–2017 was USD 3.17 billion, of which 86 per cent was from multilateral channels and 14 per cent from bilateral channels. Brazil provided, in tabular format, comprehensive information on source, amount and type of funds, financing instrument, sector supported, climate-specific component of the project (according to the Rio markers of the Organisation for Economic Co-operation and Development) and project focus. The Party received USD 7,528,000 from the Global Environment Facility to support the preparation of its second and third BUR and NC4. In addition, substantive financial, technical and in-kind support was provided by the Federal Government, by various agencies and through other projects for the preparation of the third BUR.

65. Brazil reported information on nationally determined technology needs with regard to the development and transfer of technology in accordance with decision 2/CP.17, annex III, paragraph 16. The Party reported, in tabular format, the technology received as part of the various projects that were supported through multilateral and bilateral channels. During the technical analysis, Brazil explained that its proposed technology needs assessment project for mitigation actions, to be completed by 2020, will assist in enhancing the articulation of its technology needs and assessment as well as increase technology diffusion and development, preferentially by building local expertise and improving national capacity to fund access to sectoral priority technologies. Brazil also explained that through the technology needs assessment process it would support the identification of technology transfer projects and provide a better enabling environment for the adoption and promotion of prioritized, imported and/or endogenous technologies.

5. Any other information

66. Brazil reported some information on the National Adaptation Plan, which is part of its efforts to reduce climate change vulnerability and manage risks. The Party identified technology exchange and cooperation, more specifically methodologies and technologies that assist in quantifying emission reductions, as a technology need.

D. Identification of capacity-building needs

67. In consultation with Brazil, the TTE identified the following need for capacity-building that could facilitate the preparation of subsequent BURs and participation in ICA: strengthening the institutional framework for preparing GHG inventories so as to enable their preparation on a biennial basis, data collection and the application of higher-tier methodologies (in particular for the industrial processes and LULUCF sectors).

68. The TTE noted that, in addition to those identified during the technical analysis, Brazil reported the following capacity-building needs in its BUR:

(a) Training of specialists in traceability and certification systems as part of the domestic MRV system;

(b) Support for dissemination of knowledge;

(c) Support for digital interaction among public record agencies;

(d) Technical training on and dissemination of energy management systems;

(e) Technical training on methodology application, infrastructure and equipment and conducting studies.

III. Conclusions

69. The TTE conducted a technical analysis of the information reported in the third BUR of Brazil in accordance with the UNFCCC reporting guidelines on BURs. The TTE concludes that the reported information is mostly consistent with the UNFCCC reporting guidelines on BURs and provides an overview of national circumstances and institutional arrangements relevant to the preparation of NCs on a continuous basis; the national inventory of anthropogenic emissions by sources and removal by sinks of all GHGs not controlled by the Montreal Protocol, including a national inventory report; mitigation actions and their effects, including associated methodologies and assumptions; constraints and gaps and related financial, technical and capacity-building needs, including a description of support needed and received; the level of support received to enable the preparation and submission of BURs; domestic MRV; and any other information relevant to the achievement of the objective of the Convention. During the technical analysis, additional information was provided by Brazil on GHG inventory methodologies and assumptions and nationally determined technology needs and technology support received, and an updated data set containing notation keys was also provided. The TTE noted improvements in reporting in the Party’s third BUR compared

with that in the second BUR. The TTE concluded that the information analysed is mostly transparent.

70. Brazil reported information on the institutional arrangements relevant to the preparation of its BURs. The Ministry of Foreign Affairs is responsible for coordinating the BURs with the support of a task force comprising relevant ministries (Ministry of Science, Technology, Innovation and Communications; Environment; Agriculture; Mines and Energy; and Economy), the Brazilian Agricultural Research Corporation and the Brazilian Cooperation Agency. The Party also reported information on its domestic MRV system, including the component systems that cover the GHG inventories (SIRENE) and the NAMAs (SMMARE).

71. In its third BUR, submitted in 2019, Brazil reported information on its national GHG inventory for 1990–2015. This included GHG emissions and removals of CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 for all relevant sources and sinks as well as the precursor gases. The inventory was developed on the basis of the Revised 1996 IPCC Guidelines; in some cases, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF were applied, as appropriate, and specific EF values from the 2006 IPCC Guidelines were applied for individual key categories. The total GHG emissions reported by Brazil in 1994 and 2015 were 1,476,964 Gg CO_2 eq and 1,368,152 Gg CO_2 eq (including LULUCF), respectively.

72. Brazil reported information on mitigation actions and their effects. The Party reported actions that are ongoing, which occur in the energy, industrial processes, agriculture and LULUCF sectors. Information on methodologies and assumptions were reported for all of its mitigation actions. The key mitigation actions are related to the ABC Plan, the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon and the Action Plan for the Prevention and Control of Deforestation and Forest Fires in the Cerrado Biome, as well as to the energy sector. Among these actions, the Legal Amazon Action Plan has the highest expected cumulative reductions of approximately 560 Mt CO_2 eq by 2020. Co-benefits were also outlined by the Party for its ABC Plan and included increased food production, increased food safety and increased resilience of production systems to climate change.

73. Brazil reported information on key constraints, gaps and related needs. Brazil also reported on key challenges and needs, such as the additional support needed to scale up actions so that they cover the entire country. Information on support received and needed was reported in detail. The Party reported that information on nationally determined technology needs, prioritization of technology and technology transfer for mitigation would be determined from the proposed technology needs assessment project.

74. The TTE, in consultation with Brazil, identified one capacity-building need listed in chapter II.D above that aims to facilitate reporting in accordance with the UNFCCC reporting guidelines on BURs and participation in ICA in accordance with the ICA modalities and guidelines, taking into account Article 4, paragraph 3, of the Convention.

Annex I

Extent of the information reported by Brazil in its third biennial update report

Table 1
Identification of the extent to which the elements of information on greenhouse gases are included in the third biennial update report of Brazil

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
Decision 2/CP.17, paragraph 41(g)	The first BUR shall cover, at a minimum, the inventory for the calendar year no more than four years prior to the date of the submission, or more recent years if information is available, and subsequent BURs shall cover a calendar year that does not precede the submission date by more than four years.	Yes	Brazil submitted its third BUR in March 2019; the GHG inventories reported are for 1990–2015.
Decision 2/CP.17, annex III, paragraph 4	Non-Annex I Parties should use the methodologies established in the latest UNFCCC guidelines for the preparation of NCs from non-Annex I Parties approved by the Conference of the Parties or those determined by any future decision of the Conference of the Parties on this matter.	Yes	Brazil used a combination of the Revised 1996 IPCC Guidelines and the 2006 IPCC Guidelines, and, in some cases, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF were applied.
Decision 2/CP.17, annex III, paragraph 5	The updates of the section on national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol should contain updated data on activity levels based on the best information available using the Revised 1996 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF; any change to the EF may be made in the subsequent full NC.	Yes	
Decision 2/CP.17, annex III, paragraph 6	Non-Annex I Parties are encouraged to include, as appropriate and to the extent that capacities permit, in the inventory section of the BUR:		
	(a) The tables included in annex 3A.2 to the IPCC good practice guidance for LULUCF;	No	Comparable information was not reported.
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines.	Yes	Comparable information was reported.
Decision 2/CP.17, annex III, paragraph 7	Each non-Annex I Party is encouraged to provide a consistent time series back to the years reported in its previous NCs.	Yes	The time series reported for 2011–2015 is consistent and there are no updates to the 1990–2010 inventory.
Decision 2/CP.17, annex III, paragraph 8	Non-Annex I Parties that have previously reported on their national GHG inventories contained in their NCs are encouraged to submit summary information tables of inventories for previous submission years (e.g. for 1994 and 2000).	Yes	This information was reported for 1994, 2000, 2010, 2012 and 2015.
Decision 2/CP.17, annex III, paragraph 9	The inventory section of the BUR should consist of a national inventory report as a summary or as an update of the information contained in decision 17/CP.8, annex, chapter III (National greenhouse gas inventories), including:		

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
	(a) Table 1 (National greenhouse gas inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol and greenhouse gas precursors);	Yes	
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF_6).	Yes	
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex.	Yes	The Party submitted two REDD+ technical annexes as an annex to its BUR.
Decision 17/CP.8, annex, paragraph 12	Non-Annex I Parties are also encouraged, to the extent possible, to undertake any key source analysis as indicated in the IPCC good practice guidance to assist in developing inventories that better reflect their national circumstances.	No	
Decision 17/CP.8, annex, paragraph 13	Non-Annex I Parties are encouraged to describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, as well as efforts to make this a continuous process, including information on the role of the institutions involved.	Yes	
Decision 17/CP.8, annex, paragraph 14	Each non-Annex I Party shall, as appropriate and to the extent possible, provide in its national inventory, on a gas-by-gas basis and in units of mass, estimates of anthropogenic emissions of:		
	(a) CO_2;	Yes	
	(b) CH_4;	Yes	
	(c) N_2O.	Yes	
Decision 17/CP.8, annex, paragraph 15	Non-Annex I Parties are encouraged, as appropriate, to provide information on anthropogenic emissions by sources of:		
	(a) HFCs;	Yes	
	(b) PFCs;	Yes	
	(c) SF_6.	Yes	
Decision 17/CP.8, annex, paragraph 16	Non-Annex I Parties are encouraged, as appropriate, to report on anthropogenic emissions by sources of other GHGs, such as:		
	(a) Carbon monoxide;	Yes	
	(b) Nitrogen oxides;	Yes	
	(c) Non-methane volatile organic compounds.	Yes	
Decision 17/CP.8, annex, paragraph 17	Other gases not controlled by the Montreal Protocol, such as sulfur oxides, and included in the Revised 1996 IPCC Guidelines may be included at the discretion of Parties.	No	During the technical analysis, the Party clarified that these emissions are not significant. The methodology recommended by the IPCC is established by CORINAIR and would require greater effort from the country for its application.
Decision 17/CP.8, annex, paragraph 18	Non-Annex I Parties are encouraged, to the extent possible, and if disaggregated data are available, to estimate and report CO_2 fuel combustion emissions using both the sectoral and	No	The information was reported only for the sectoral approach.

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
	the reference approach and to explain any large differences between the two approaches.		
Decision 17/CP.8, annex, paragraph 19	Non-Annex I Parties should, to the extent possible, and if disaggregated data are available, report emissions from international aviation and marine bunker fuels separately in their inventories:		
	(a) International aviation;	Yes	
	(b) Marine bunker fuels.	Yes	
Decision 17/CP.8, annex, paragraph 20	Non-Annex I Parties wishing to report on aggregated GHG emissions and removals expressed in CO_2 eq should use the GWP provided in the AR2 based on the effects of GHGs over a 100-year time-horizon.	Yes	Brazil also presented national totals using GWP values and GTP values based on the effects over a 100-year time-horizon of GHGs provided in the AR5.
Decision 17/CP.8, annex, paragraph 21	Non-Annex I Parties are encouraged to provide information on methodologies used in the estimation of anthropogenic emissions by sources and removals by sinks of GHGs not controlled by the Montreal Protocol, including a brief explanation of the sources of EFs and AD. If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe the source and/or sink categories, methodologies, EFs and AD used in their estimation of emissions, as appropriate. Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building:		
	(a) Information on methodologies used in the estimation of anthropogenic emissions by sources and removals by sinks of GHGs not controlled by the Montreal Protocol;	Yes	Brazil used the Revised 1996 IPCC Guidelines, the 2006 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF. Tier 1, 2 and 3 methodologies were used for specific sectors.
	(b) Explanation of the sources of EFs;	Yes	The BUR referred to the NC3 for this explanation.
	(c) Explanation of the sources of AD;	Yes	The BUR referred to the NC3 for this explanation.
	(d) If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe:	NA	
	(i) Source and/or sink categories;		
	(ii) Methodologies;		
	(iii) EFs;		
	(iv) AD;		
	(e) Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building.	No	

Decision	*Provision of the reporting guidelines*	*Yes/partly/no/NA*	*Comments on the extent of the information provided*
Decision 17/CP.8, annex, paragraph 22	Each non-Annex I Party is encouraged to use tables 1 and 2 of the guidelines annexed to decision 17/CP.8 in reporting its national GHG inventory, taking into account the provisions established in paragraphs 14–17. In preparing those tables, Parties should strive to present information that is as complete as possible. Where numerical data are not provided, Parties should use the notation keys as indicated.	Partly	Brazil presented data from its GHG inventory in tables, but it did not use notation keys.
Decision 17/CP.8, annex, paragraph 24	Non-Annex I Parties are encouraged to provide information on the level of uncertainty associated with inventory data and their underlying assumptions, and to describe the methodologies used, if any, for estimating these uncertainties:		
	(a) Level of uncertainty associated with inventory data;	Yes	
	(b) Underlying assumptions;	Yes	Brazil stated in its BUR that it used the same assumptions as in the NC3.
	(c) Methodologies used, if any, for estimating these uncertainties.	Yes	Brazil stated in its BUR that it used the same methodologies as in the NC3.

Note: The parts of the UNFCCC reporting guidelines on BURs on reporting information on GHG emissions by sources and removals by sinks in BURs are contained in decision 2/CP.17, paras. 3–10 and 41(g). Further, as per para. 3 of those guidelines, non-Annex I Parties are to submit updates of their national GHG inventories in accordance with paras. 8–24 of the UNFCCC guidelines for the preparation of NCs from non-Annex I Parties, contained in the annex to decision 17/CP.8. The scope of such updates should be consistent with the non-Annex I Party's capacity and time constraints and the availability of its data, as well as the level of support provided by developed country Parties for biennial update reporting.

Table 2
Identification of the extent to which the elements of information on mitigation actions are included in the third biennial update report of Brazil

Decision	*Provision of the reporting guidelines*	*Yes/partly/no*	*Comments on the extent of the information provided*
Decision 2/CP.17, annex III, paragraph 11	Non-Annex I Parties should provide information, in tabular format, on actions to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.	Yes	
Decision 2/CP.17, annex III, paragraph 12	For each mitigation action or group of mitigation actions, including, as appropriate, those listed in document FCCC/AWGLCA/2011/INF.1, developing country Parties shall provide the following information, to the extent possible:		
	(a) Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases), quantitative goals and progress indicators;	Yes	
	(b) Information on:		
	(i) Methodologies;	Yes	
	(ii) Assumptions;	Yes	
	(c) Information on:		
	(i) Objectives of the action;	Yes	

Decision	*Provision of the reporting guidelines*	*Yes/partly/no*	*Comments on the extent of the information provided*
	(ii) Steps taken or envisaged to achieve that action;	Yes	
	(d) Information on:		
	(i) Progress of implementation of the mitigation actions;	Yes	
	(ii) Progress of implementation of the underlying steps taken or envisaged;	Partly	Brazil did not report information on steps envisaged, only steps taken.
	(iii) Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;	Yes	
	(e) Information on international market mechanisms.	Yes	
Decision 2/CP.17, annex III, paragraph 13	Parties should provide information on domestic MRV arrangements.	Yes	

Note: The parts of the UNFCCC reporting guidelines on BURs on the reporting of information on mitigation actions in BURs are contained in decision 2/CP.17, annex III, paras. 11–13.

Table 3

Identification of the extent to which the elements of information on finance, technology and capacity-building needs and support received are included in the third biennial update report of Brazil

Decision	*Provision of the reporting requirements*	*Yes/partly/no*	*Comments on the extent of the information provided*
Decision 2/CP.17, annex III, paragraph 14	Non-Annex I Parties should provide updated information on:		
	(a) Constraints and gaps;	Yes	
	(b) Related financial, technical and capacity-building needs.	Yes	
Decision 2/CP.17, annex III, paragraph 15	Non-Annex I Parties should provide:		
	(a) Information on financial resources received, technology transfer and capacity-building received;	Yes	
	(b) Information on technical support received from the Global Environment Facility, Parties included in Annex II to the Convention and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change, including for the preparation of the current BUR.	Yes	
Decision 2/CP.17, annex III, paragraph 16	With regard to the development and transfer of technology, non-Annex I Parties should provide information on:		
	(a) Nationally determined technology needs;	Yes	
	(b) Technology support received.	Yes	

Note: The parts of the UNFCCC reporting guidelines on BURs on the reporting of information on finance, technology and capacity-building needs and support received in BURs are contained in decision 2/CP.17, annex III, paras. 14–16.

Annex II

Documents and information used during the technical analysis

Reference documents

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Third NC of Brazil. Available at https://unfccc.int/non-annex-I-NCs.